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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/071,213	02/11/2002	Larry Mank	PET-1984	9273

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EXAMINER

BHAT, NINA NMN

ART UNIT	PAPER NUMBER
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1764

DATE MAILED: 06/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/071,213

Applicant(s)

MANK ET AL.

Examiner

N. Bhat

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 August 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-17 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 11 February 2002 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2-11-2002.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The abstract of the disclosure is objected to because applicant recites "The invention relates to...." Applicant cannot use this type of terminology or legal phraseology when drafting the abstract. Correction is required. See MPEP § 608.01(b).
2. Claims 16-17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The process as claimed is incomplete, applicant is suggested to recite the method steps, which provide recovering a hydrogen rich gas or hydrocarbon-enriched liquid apparatus. Applicant has drafted a "product by apparatus" claim, which is improper type of claims as is a "process by apparatus" claim. Applicant is suggested to redraft the process claim and include the steps to recovery the hydrogen rich gas. Applicant is forewarned that a constructively elected the apparatus and if applicant amends the claims to a process of recovering a hydrogen rich gas or hydrocarbon enriched liquid a restriction election requirement would be made. Applicant is also advised that in reading the apparatus claims, there is no weight given to a process. The apparatus claims are interpreted for examination purposes to an apparatus comprising a cold separator, and absorber, means for recycling a stream to the absorber, cooling means and a fractionation column.
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thakkar et al. in combination with Erickson.

Thakkar et al. teach an apparatus wherein a vaporous steam containing hydrocarbons and hydrogen passes upward in a stripping zone (5) which is admixed with a hydrocracking zone effluent, the admixture is then introduced into a heat exchanger which cools the mixture, the resulting cooled effluent is then introduced into a high pressure separator (38). A spent aqueous stream is removed from the high-pressure line and recovered. A hydrogen rich gaseous stream is removed from the high-pressure separator. A liquid stream containing hydrocarbon-enriched liquid is removed from the high-pressure separator (38) via line (40) and introduced into a cold flash zone to produce a gas, which is then introduced into the absorber (48). The gaseous stream in absorber (48) is counter currently contacted with a gaseous stream containing methane and ethane is removed from the absorber and recovered. A liquid stream is removed via line (50) and is admixed with a liquid stream provided via line (14) and the resulting admixture is carried via line (15) and introduced into debutanizer

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(16). A LPG produce stream is removed from the dethanizer and recovered. A liquid stream is removed from the bottom of debutanizer and introduced into absorber (48) and another portion is carried and introduced into a fractionator (20). A low molecular weight hydrocarbon stream is removed from the fractionator (20) via line (21) and recovered.

However, Thakkar et al. does not specifically teach that the separator is a cold separator and that cooling means is a refrigerated cooling means.

Erickson teaches recovering C_{3+} hydrocarbons from gas withdrawn from a catalyst reformer plant. The reformer reactor effluent is recuperatively cooled in a heat exchange, a chiller heat exchange subsequently cools the withdrawn gas to below -15°C such that part of the C_{3+} condenses; followed by separating the C_{3+} from the withdrawn gas. The remaining hydrogen rich gas is compressed in a recycle compressor.

It would have been obvious to substitute a cold separator and refrigeration cooling exchange for the high pressure separator and heat exchanger of Thakkar et al. in order to separate the light hydrocarbon gas from a reformat stream and recover the hydrogen enriched gas and the light hydrocarbon enriched liquid effluent stream because Thakkar et al. discloses applicant's apparatus substantially as claimed the elements of the apparatus and arrangement of elements are specifically taught in Thakkar et al. to substitute a chiller heat exchanger where a heat exchanger for cooling a stream has been taught as well as substituting a cold separator where a separator for separating the stream would have been an obvious substitution and obvious design

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choice thus the combined teachings of Thakkar et al. in combination with Erickson renders applicant's claims as a whole obvious.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Pappas et al. teach a process for purifying a hydrogen gas and recovering liquefiable hydrocarbons from a hydrocarbon effluent stream. Domergue et al. teach an apparatus for processing a product from catalytic reforming.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to N. Bhat whose telephone number is 571-272-1397. The examiner can normally be reached on Monday-Friday, 9:30AM-6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


N. Bhat
Primary Examiner
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